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for his pictures. To him Art is indebted for the charm of a harmony which arises from perfect gradation, and that depth and fullness of composition caused by foreshortening and bold perspective.

D. HUNTINGTON.

HISTORY AND PROGRESS OF BANK NOTE ENGRAVING.

BANK NOTE engraving in this country, having of late years become legitimately entitled to rank as a branch of the fine, as well as useful arts, a few words in relation to its history and progress will not be out of place, or uninteresting to the readers of the Crayon, all of whom are more or less familiar with its productions, while not a few have with their skill and genius assisted in their execution.

The earliest engraved notes of which we have any distinct recollection, and we think they were the first put into circulation in this country, were those issued by the Bank of North America; an institution chartered by the provincial Congress, upon the recommendation of the patriot financier of the Revolutionary epoch, Robert Morris, for the purpose of aiding the government during its pressing financial difficulties.

These notes were embellished by a small vignette of graceful design, which was, we believe, engraved by the elder Heath. The promissory part of the note was printed with type made in this country. This vignette was subsequently copied by Fairman, on a steel die, and continued to be for many years the special design for all the notes of this bank. As this bank was the *first*, it continued for some time the *only* one in the country, and therefore may be considered as the mother of the large family which now has a member in almost every village of the Union—embellishing our architecture with handsome structures, and furnishing the community with a currency which, if not always the soundest, is certainly the most beautiful in the world.

In the minutes of the directors of the bank, there occurs a resolution, offered at the suggestion of Franklin, providing for the issue of notes of the denomination of *one cent*. The director, in proposing the resolution, remarked that Franklin had just imported some paper from London which would answer to print them upon. Thus, while furnishing the public with "small change," "Poor Richard" would be enabled to turn a penny on his own account. The charter of this bank was a perpetual one, but having been granted by the provincial Congress, was exchanged when the federal government went into operation, for one from the State of Pennsylvania, under which it has continued to exist until this time, sustaining a reputation not surpassed by any similar institution in the world.

Shortly after the establishment of the federal government, Congress chartered the first bank of the United States; and the legislatures of many of the States also granted similar privileges to capitalists. Engravers at this period were few in number and "mediocre" in talent; but the notes they produced were far superior to those issued by the banks of England or France, and the counterfeiter found them no doubt quite as difficult of imitation as he does the more elaborate and highly

finished engravings of the present day. Scott and Harrison appear to have been the favorite, and perhaps were the only engravers at this time; and in the department of lettering, they were remarkably skillful. It was not long, however, before greater skill was found to be necessary, and a company was accordingly formed under the title of "Murray, Draper & Fairman"—a name that subsequently became familiar to the whole community, and such was its reputation, that the imprint alone, for a long period, would give currency to a note, as it also proved its genuineness. The senior partner, George Murray, was an Englishman, who had been employed by Bradford to copy several plates for the Encyclopedia, and had executed the work in the most satisfactory manner. Mr. Draper was a pupil of Scott, and had for several years been engaged in engraving the lettering for several banks, which he had executed in a style so beautiful, as even at this day to attract the attention and admiration of the lovers of the chirographic art. Gideon Fairman was a self-taught artist, in the true meaning of the term, he never having had the assistance of a teacher, or a single lesson, excepting one from a travelling tinker, whom he had seen cut a cypher on a pewter spoon. He had been several years established in Albany, and while there had designed and engraved plates for banks in New-York and New-Orleans, which have seldom been surpassed, either in beauty of design or skillfulness in execution.

In addition to their own talent as engravers, these artists, to give greater security to their work, called to their aid an ingenious mechanic (Mr. Brewster) who had made a steel die by the means of a variety of small punches, of a very complicated character, and difficult to imitate. This die was impressed by machinery upon the margin of the notes, and a small oval one of the same character was employed for the denominational figures. With these two universal features, and a new vignette for every bank and each denomination, this company, for a period of about fifteen years, continued to monopolize the bank note engraving of the whole country, with the exception of a portion of the New-England States; but as it is too frequently the case in the absence of competition, there was no improvement in the character of this work generally, though now and then there were single exceptions.

In the meantime, Jacob Perkins, of Newburyport, Mass., a very ingenious mechanic, subsequently well known as the inventor of the steam gun, and also for many interesting philosophical experiments—made a set of plates to which was given the name of "Perkins' stereotype steel plates." These plates were composed of steel blocks covered with engraving, principally the denomination in very small letters, which being many times repeated, was supposed to give great security against counterfeiting. Grooves, or open spaces, were made for the insertion of the title of the bank and its location, consequently but one set of plates, comprising the various denominations, were required; and as they were case-hardened, all the banks in that part of the country were furnished with impressions that were *identically* the same. They became so popular, that several of the legislatures

made it one of the conditions of a charter, that the notes should be printed from these plates. This identity however, which was for a long time their chief merit, proved in the end to be the principal objection to the system; as a successful imitation of any one of the notes was in fact an imitation of the whole circulation. The field being so large a one, the attention of counterfeiters was directed to it; and after repeated attempts, so perfect a fac-simile was made as to induce the legislature to remove all restrictive measures in relation to the engraving of notes—and those from the "Perkins' stereotype steel plates" soon after became obsolete. The engraving on these plates was probably the first ever executed upon steel, and the world is indebted to Mr. Perkins for all the advantages which have resulted from the substitution of this metal in place of copper. It may be proper in this connection to mention, that Mr. Perkins also invented and brought into successful-use the ink-roller, in place of the *dabber*, which had been universally used, not only for letter-press but copper-plate printing. And if we are not mistaken, he was the first to make *transfers* of fine engravings from hardened steel plates to steel cylinders, and re-transfers to flat plates; thus enabling the engraver to multiply his finest work, preserving the original, and yet repeating it on other plates to any extent, so that the labor of months and years even may be re-engraved as it were in a few minutes. This invention may be justly considered as the first great improvement in the art, as it enabled the engravers to bestow much more time on the execution of the originals, and thus led to the excellence of the work now to be seen on all the notes executed in this country. It also brought into use a new species of work—which has not yet been superseded—as a background for the denomination, and as an additional security against counterfeiting. This work was produced by a geometric lathe invented by Asa Spencer, a watchmaker, living at the time in New-London, Conn., and was the result of an attempt to imitate the rose engine turnings on the backs of watch cases. The figures produced by this lathe are as varied and endless as those of the kaleidoscope, while those of the French lathe were limited to a given number of patterns. Other ingenious modifications of the principle were subsequently made by Cyrus Durand. Mr. Spencer also invented a machine for dividing, graduating, and ruling straight or waved lines, which, with an addition by Mr. Gobrecht of Philadelphia, produced a new and beautiful style of engraving, called medallion ruling, and thus added a new feature, as well as additional security, to bank notes.

Bank note engraving had advanced to this state, when, in 1819, at the suggestion of Sir Charles Bagot, at that time resident British minister at Washington, Messrs. Perkins and Fairman, accompanied by Mr. Spencer and C. Toppan, went to London for the purpose of presenting specimens of their work to the Bank of England—the bank then contemplating an entire change in its circulation, in consequence of the large number of counterfeiters then in circulation, and the strong feeling produced in the public mind by the frequency and severity of the punishment, the result of these

attempts to defraud the bank. They met with a flattering reception. Orders had been forwarded to the custom-house to admit the machinery free of duty. Upon their arrival in London, social hospitalities were extended to them, and their establishment was visited by throngs, from the royal Duke to the humble artisan, including the Lord Mayor, the Governor and Directors of the bank, and members of the various scientific societies. For a time it was one of the lions of the metropolis, and such was the favorable opinion expressed by all, that scarcely a doubt was entertained of this enterprise; and as their own artists had not presented any specimens worthy of notice, the bank, after a year's hesitation, decided upon withdrawing from circulation all notes under £5, and continuing the use of the old plates for other denominations, relying for security against the counterfeiter, upon the *paper maker* and *hangman*, instead of the *engraver*. This decision was not formally communicated to Messrs. Perkins and Fairman, and they were kept in a state of uncertainty until their *patience* and *funds* were alike exhausted, when presuming that they were not to be successful in the first great object of their enterprise, they began to turn their attention to other quarters, and the result has been a business more extensive and profitable, than if it had been exclusively confined to the Bank of England. The establishment then created, is still continued under the direction of members of Mr. Perkins's family; and at this time it furnishes the entire paper currency of the United Kingdom and most of its colonies, with the exception of that of the Banks of England and Ireland. It also enjoys the patronage of the government, supplying the excise and post-office stamps—and strange as it may appear, without exciting rivalry.

After more than a year's absence, Messrs. Fairman and Spencer returned to the United States; upon their arrival they learned of the death of Murray and the insolvency of the company, caused mainly by his (Murray's) injudicious and extravagant speculations in real estate. A reorganization of the firm, including Underwood and Spencer, and more highly-finished engravings from the burin of Fairman, and machine work by Spencer, soon increased their already high reputation; great as this was, however, others were not deterred from entering the field, and from that period to the present time, there has been a continued and rapid improvement in every department of these paper mints, each of the companies bringing to their aid the best artists and most ingenious mechanics of the country, fostering and developing talent by liberal rewards, until a currency is furnished, which is well calculated to diffuse throughout the community a refined taste, and a love for the beautiful in Art. Among the names of the artists and mechanics to whom we are mainly indebted for this result, we would mention the names of A. B. Durand and J. W. Casilear, the eminent landscape painters; Henry Inman, Darley, Armstrong, Danforth, Jones and Cashman; to the mechanical department, Spencer, C. Durand, and others.

The various establishments holding high

positions in the Art department of bank note engraving, have, each of them, a *stock* of dies, consisting of exquisitely engraved vignettes, portraits, and other ornaments, and engine turnings of the most elaborate character. They are conducted by men in every way qualified for their very responsible stations—and there are few involving higher responsibilities. It now only remains for the banks to do their duty, by withdrawing all soiled notes from circulation; and we shall then have a currency of which we may be justly proud, and which the most ultra Bentonites would regard with complacency.

THE ART OF THE USE OF COLOR IN IMITATION IN PAINTING.

NO. II.

BY WILLIAM PAGE.

There are, as we have before stated, only three primitive colors in Nature or Art, and when any of these, or the compounds made from them, are brought into contact by being placed near or against each other, it is found that their apparent brilliancy is increased, or set off by the contrast, &c. As for instance, red, when seen by the side of green, appears more red by the contact—green being the other two primitives combined into one color. In like manner, yellow is affected by purple, and blue by orange; so that for simple contrast, we have but to take one primitive color, no matter which, and combine the other two, to make an opposition to the first, such as all times and nations have accepted as agreeable to the eye; whereas, any two of the primitive colors, brought directly together, produces a discord, often very harsh and disagreeable in itself, but when skillfully used by the artist, becoming a great power in his hands, to drive together into a more intimate harmony the less discordant colors used. These primitives, when all mixed together, produce brown. This is the universal color of Nature, and the great harmonizer of those old masters, who understood colors the best, and which brown many moderns have observed as making up the greater proportion of the tone of the pictures of the best colorists, and the want of which, in modern schools, as I shall show, is but another proof of that deficiency of knowledge of colors in this day that I have more than hinted at. This brown color, as I said, being composed of red, yellow, and blue, is capable of infinite variations, as it may pass from reddish-brown to blackish-brown, or yellowish-brown, at the will of the painter; so that if he desires to make a red more powerful by the opposition to it of his ground or surrounding color, he has but to make it (the ground) tend in its hue towards greenish-brown; or if he would merge it in, or harmonize it with the surrounding ground color, he makes the aforesaid ground of a reddish-brown; for these two opposite principles of harmony and contrast comprehend all that this external application of color can do. For when the painter would make any one of the primitive colors more striking to the eye, he surrounds it with a compound mostly composed of the other two, thereby forming the greatest opposition; and when he would harmonize or soften its effect to the eye, he uses least of these opposites. A few experiments made on white paper in water colors, with red, yellow and blue, will soon enable any artist to thread all the intricacies of the whole scale of color, and their possible oppositions and harmonies, as matter of mere contrast and harmony of external color. This, and what grows immediately out of this, is all the superficial knowledge of what is called the present English School of Painting, of which we Americans have taken to

ourselves more than can do us good, unless we learn better where to bestow it, in its proper place, subject to higher laws, the laws of the imitation, or the reproduction of Nature's works. It is so notorious as to cause comment to be made the world over, wherever there are to be found modern, and *good old* pictures, that the new are light, or white and feeble, or glaring in color, when compared with the old, or even good copies from them. The Royal Academy Exhibitions strike all observers in this, whether they be Englishmen or Americans, as being an assemblage of bright colors and whitewash, having no type anywhere in Nature, but only like *itself*, or other modern exhibitions of pictures, whether on the continent of Europe or here in America, ever the same crude, feeble, grey, garish, unharmonized patches of gaudy colors and staring whiteness. Whereas, the better works of the old painters, particularly those who can lay claim to any knowledge of color, are uniformly found to be low in tone, rich, brown and harmonious, the flesh (the best of color in Art) in that medium between light and dark, where only the greatest amount of color can be found, so that the flesh in Titian's pictures, according to the best critics, is perhaps the lowest in its local color ever painted. This has been variously accounted for by different writers, as owing to the age of the pictures, time being supposed to have sunken them to their present low scale, &c., &c., all of which is insufficient to explain satisfactorily the fact, as there are even old pictures of Titian's time, or earlier, as light and crude as any modern English or French, when if time would have done this thing for one, it would, being no respecter of persons, have done it for all. But there can be given a clear and satisfactory solution of this problem, that shall show to common sense that instead of its having been time or accident that has made pictures which were originally bad or indifferent, good, the painters who produced them really knew the Art which they professed and practiced, more thoroughly than those who pretend to this knowledge in these days. Indeed, the old painters had only nature to study, from which they drew deep truths and principles, such as could be safely trusted to, and did universally produce results that moderns look upon as the offspring of a happier genius than we are blessed with, though it was the inevitable consequence of energetic minds, devoted to the analysis of those principles which alone can form a solid basis for true Art, and be learned from Nature, our true school-mistress.

Thus much of color as we had treated in this article, before we made this digression, a child of twelve years of age may learn in a few months of teaching; and this has been spun out by various authors, into more volumes than would be necessary to tell of the whole rise and fall of empires as well as Arts, yet this is all that modern Art has learned from the wonderful works of earlier painters, together with what science has done for us, and the increase of knowledge.

In that *medium degree*, equally removed from the extremes of light and dark, which we mentioned in our first article, occur in nature all the most powerful colors, and nowhere else, for more light must weaken, or more dark must obscure them. Hence the necessity that that most difficult of subjects to be imitated, human flesh, should be placed so low in the scale of light, as to allow all the purest color to pass through its plane, or the range of light which it occupies in the picture. This, any man may see the truth of, who has endeavored conscientiously to copy nature, or even looked attentively at such copy, when it is made. We now see a good reason why good old pictures are low in tone, not dark, or black, as too many of the specimens that reach our shores are, for if their lowness of tone is truly attained, it is so decep-